

WHAT IS CLAIMED:

1. A device, comprising:

a boiling structure to convert a coolant from liquid to vapor and having a first thermal resistance; and

a wick structure adjacent the boiling structure to bring the coolant to the boiling structure and having a second thermal resistance that is higher than the first thermal resistance of the boiling structure.
2. The device of claim 1, wherein boiling structure includes particles having an average diameter greater than about 50 μm .
3. The device of claim 2, wherein the average diameter is less than about 500 μm .
4. The device of claim 1, wherein the wick structure surrounds the boiling structure on all sides and does not extend over a top of the boiling structure.
5. The device of claim 1, wherein a top surface of the wick structure extends above a top surface of the boiling structure by about 0.1 mm or greater.

6. The device of claim 1, wherein the first thermal resistance is about $0.1\text{ }^{\circ}\text{C/W}$ for a 1 cm^2 area.

7. The device of claim 2, wherein the particles include copper.

8. The device of claim 1, wherein the wick structure includes a wire mesh, sintered particles, fibers, or axial grooves.

9. A heat pipe, comprising:
a boiling structure;
a wick adjacent the boiling structure and having a lower capacity for heat transfer per unit area than the boiling structure; and
a casing enclosing the boiling structure and the wick.

10. The heat pipe of claim 9, wherein the boiling structure has a mean feature size greater than about $50\text{ }\mu\text{m}$.

11. The heat pipe of claim 9, wherein a top surface of the wick extends beyond a top surface of the boiling structure.

12. The heat pipe of claim 9, wherein a thermal resistivity of the boiling structure is less than about $0.1\text{ }^{\circ}\text{C-cm}^2/\text{W}$.

13. The heat pipe of claim 9, wherein a thermal resistivity of the wick is greater than about $0.1\text{ }^{\circ}\text{C}\cdot\text{cm}^2/\text{W}$.

14. The heat pipe of claim 9, wherein the boiling structure, the wick, and the casing include copper.

15. A device, comprising:
a coolant;
a first structure including particles having an average diameter greater than about $50\text{ }\mu\text{m}$ to convert some of the coolant from liquid to vapor;
a second structure around the first structure to wet the boiling structure with the coolant from multiple sides; and
a plurality of outer walls to enclose the coolant, the first structure, and the second structure in an air tight manner.

16. The device of claim 15, wherein the average diameter of the particles is less than about $500\text{ }\mu\text{m}$.

17. The device of claim 15, wherein the second structure has a higher thermal resistance than the first structure.

18. The device of claim 15, wherein the second structure includes a wire mesh, sintered particles, fibers, or axial grooves.

19. The device of claim 15, wherein a top surface of the second structure extends beyond a top surface of the first structure by an amount sufficient to ensure pooling of the coolant on the top surface of the first structure.

20. A system, comprising:
a heat pipe, including:
a boiling structure having a first thermal resistivity, and
a wick structure around the boiling structure and having a second thermal resistivity that is significantly greater than the first thermal resistivity; and
a fan to move air across at least a portion of the heat pipe.

21. The system of claim 20, wherein the boiling structure includes particles having an average diameter of about 300 μm .